# Milwaukee County COVID-19 Data Summary

Milwaukee County COVID-19 Epidemiology Intel Team

This report was updated on May 07, 2020 and includes data through May 05, 2020.

## Milwaukee County COVID-19 Summary Statistics

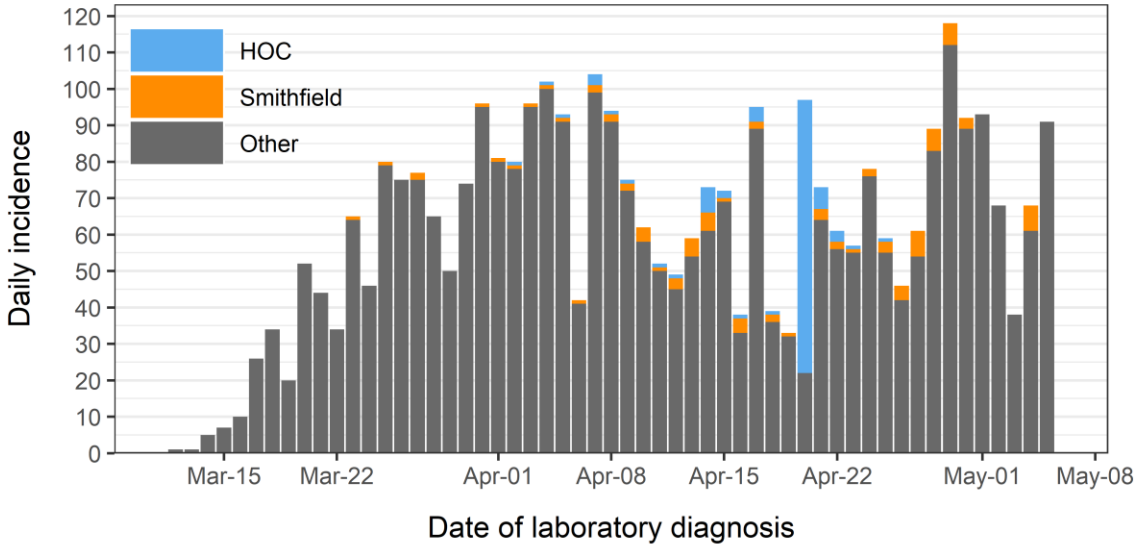
| Overall Milwaukee County COVID-19 Summary Statistics<br>March 05 - May 05 | |
|---|---|
| Number of tests | 19,081 |
| Number of cases | 3,390 |
| Percentage of positive tests | 17.8% |
| Number of hospitalizations | 1,785 |
| Number of deaths | 203 |
| Case fatality rate | 6.0% |

| Weekly Milwaukee County COVID-19 Summary Statistics<br>April 29 - May 05 | |
|---|---|
| Number of tests | 2,553 |
| Number of cases | 568 |
| Percentage of positive tests | 22.2% |
| Number of hospitalizations | 302 |
| Number of deaths | 18 |

## Total Cases and New Cases

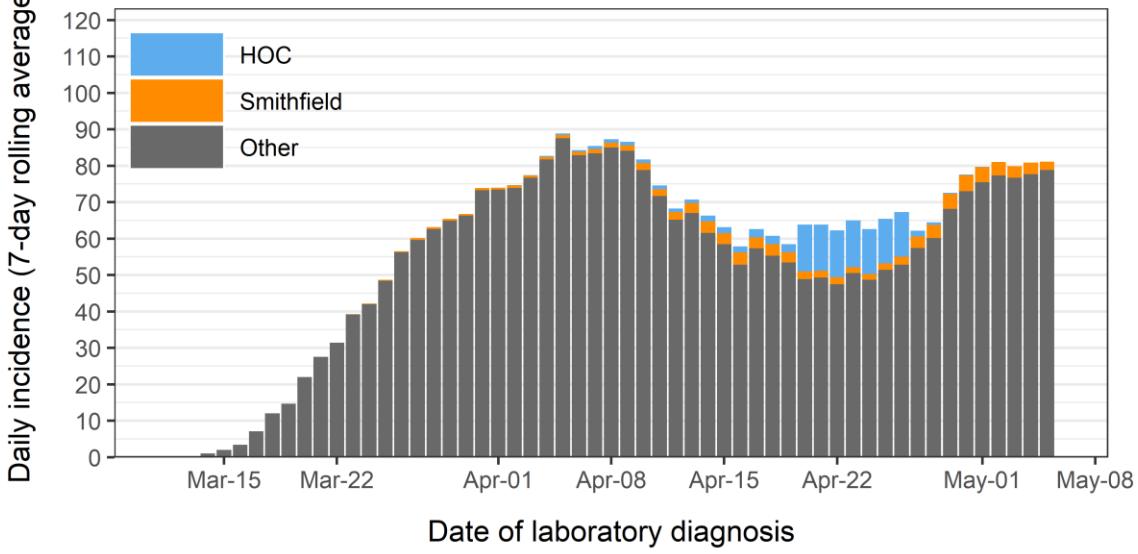
There are now a total of 3390 cases in Milwaukee County, since the first confirmed case on March 12, 2020. Over the last week, we observed 568 new confirmed cases in Milwaukee County. **Figure 1** shows the daily incidence of new cases. **Figure 2** shows the average daily incidence within the last 7 days, which provides a smoothing effect to enhance visualization. Over the last week, we have continued to see a slight increase in confirmed cases, including the single highest daily case count since the beginning of the epidemic, on April 29th. Over the last two weeks, we have seen concerted testing efforts at several facilities; the largest number of cases identified by these testing campaigns are associated with the Milwaukee County House of Corrections (HOC) and the Patrick Cudahay/Smithfield Foods meat packing plant. To acknowledge the influence of these campaigns on overall observed cases of COVID-19 in the county, we highlight them in the graphs.

**Figure 1: Milwaukee Co. daily number of COVID-19 cases**




*Data source: Wisconsin Electronic Disease Surveillance System (WEDSS)*

**Figure 2: Milwaukee Co. average daily number of COVID-19 cases**

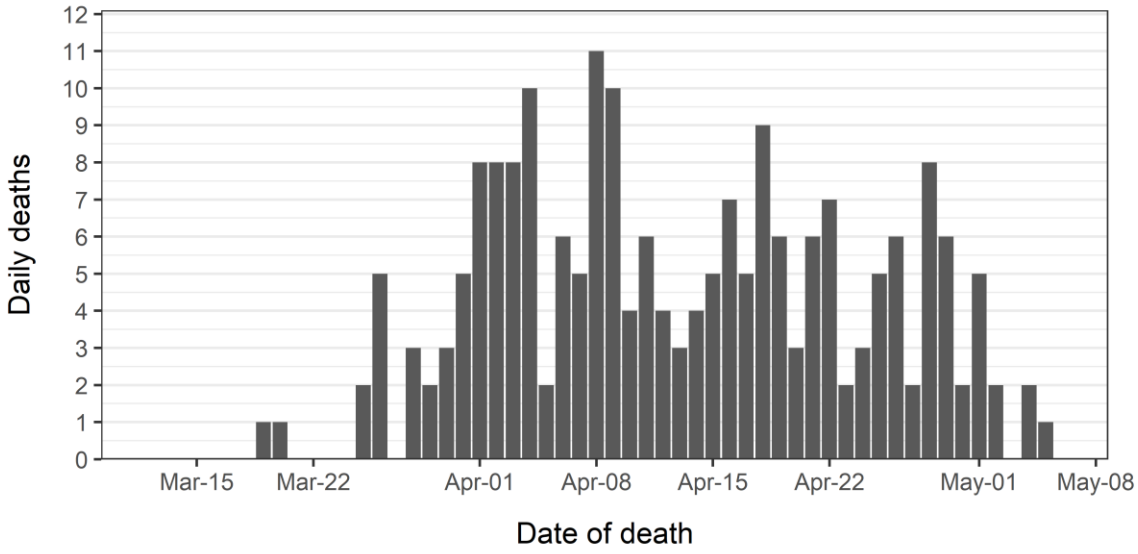



*Data source: Wisconsin Electronic Disease Surveillance System (WEDSS)*

## Total Deaths and New Deaths

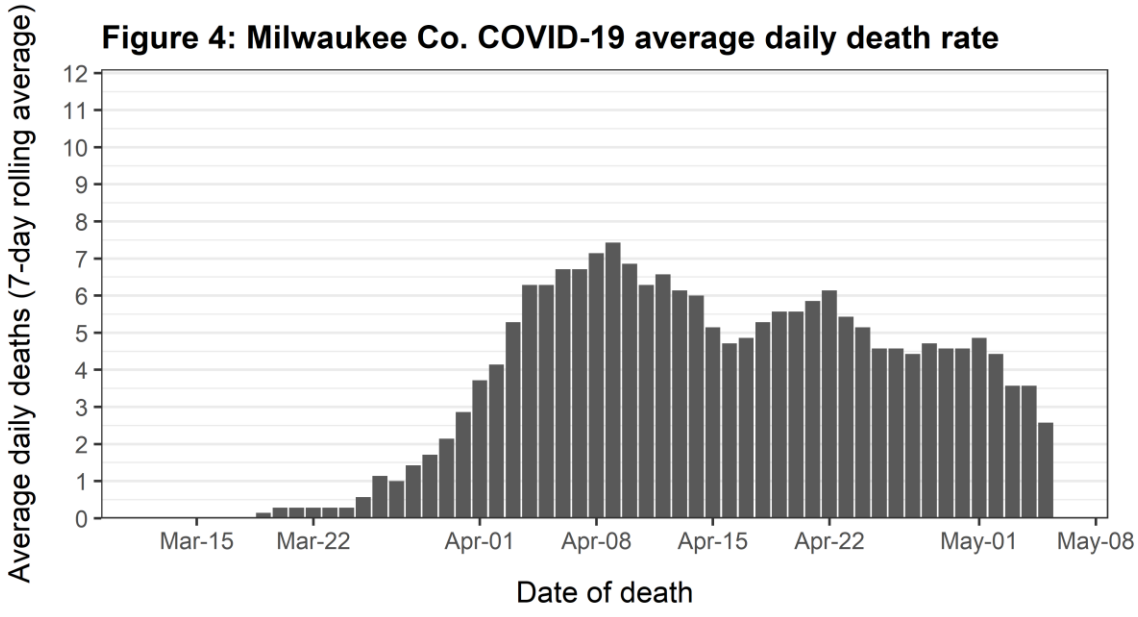
There are a total of 203 COVID-19 related deaths in Milwaukee County. Over the last week, we observed 18 deaths. **Figure 3** shows the number of daily COVID-19 related deaths among Milwaukee County residents. **Figure 4** shows the average daily death rate within the last 7 days. Overall, there appears to be a decrease in the daily number of deaths observed, from a peak of 11 deaths on April 08, 2020.

**Figure 3: Milwaukee Co. COVID-19 daily deaths**




*Data source: Wisconsin Electronic Disease Surveillance System (WEDSS)*

**Figure 4: Milwaukee Co. COVID-19 average daily death rate**

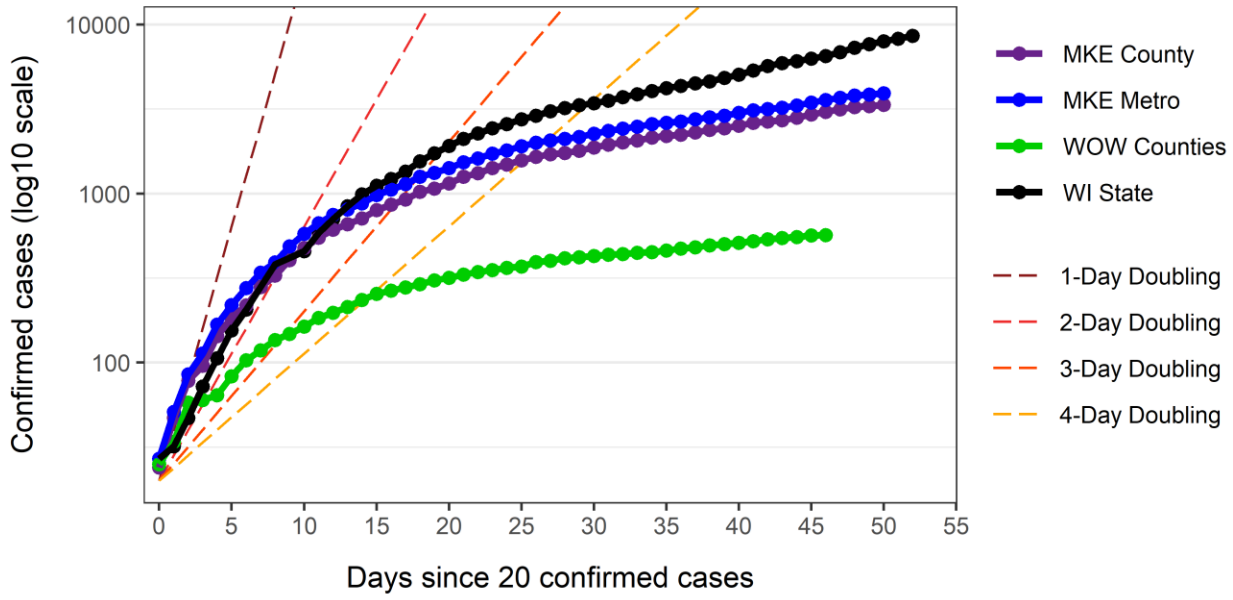



*Data source: Wisconsin Electronic Disease Surveillance System (WEDSS)*

## The COVID-19 Growth Rate

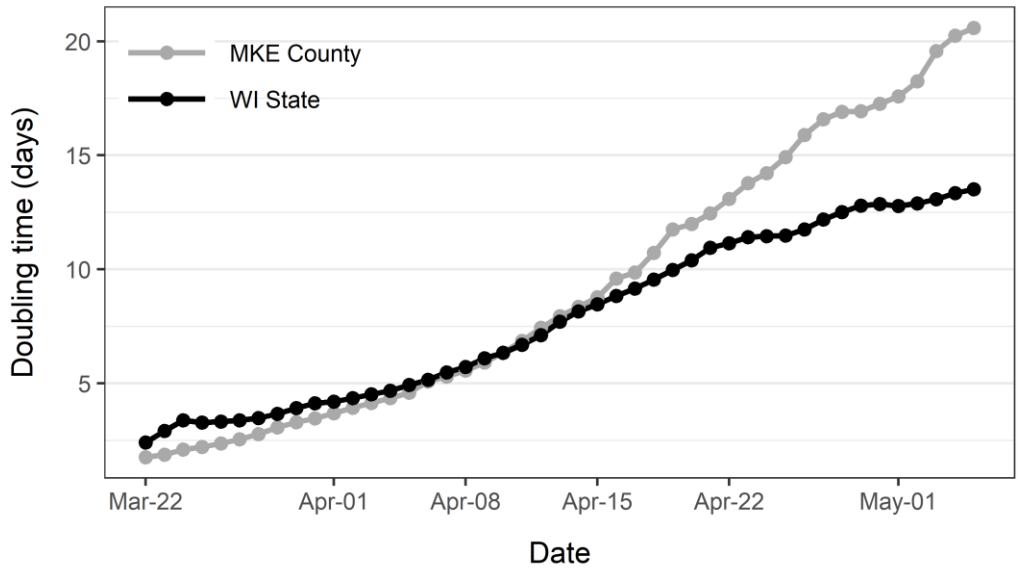
The time it takes for the number of cases to double is called the doubling time. **Figure 5** shows doubling times for Milwaukee County, the M7 (7-county) metropolitan area, and the state of Wisconsin. Dotted lines indicate doubling times of 1, 2 3 and 4 days, which are generally associated with a condition of exponential growth. The current doubling time in Milwaukee County is 20.59 days. The current doubling time for WOW counties is 15.43 days. The current doubling time for the state of Wisconsin is 13.51 days. **Figure 6** shows the trend in doubling times for Milwaukee County as compared to the state, over the course of the epidemic.

**Figure 5: Cumulative cases after 20 confirmed**




*Data source: Wisconsin Department of Health Services*

**Figure 6: Trend in doubling times**

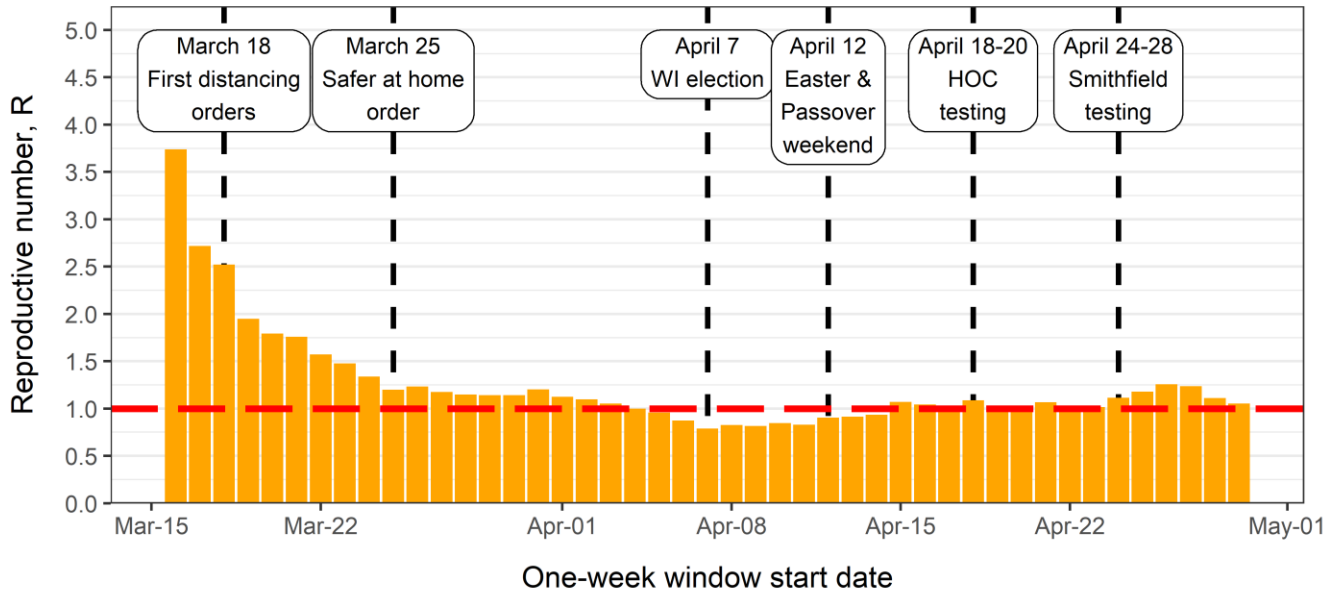



*Data sources: Wisconsin Department of Health Services &*
*Wisconsin Electronic Disease Surveillance System (WEDSS)*

## The COVID-19 Reproductive Number

Another way of examining the growth rate of the infection is to examine the reproductive number (R). This number captures the number of new cases that are the result of an existing case. For example, an R of 2 would indicate that each infected person infects 2 new people. **Figure 7** shows the change in R over time along with key dates related to physical distancing or focused testing campaigns affecting Milwaukee County residents. The R for each date is calculated to represent the R for a 7-day period with the start day of that 7-day period represented on the graph. After the lowest R value observed (R = 0.79 on April 07, 2020), we observed an increase in R to a high of 1.26 on April 26, 2020.

**Figure 7: One week reproductive number for Milwaukee County**



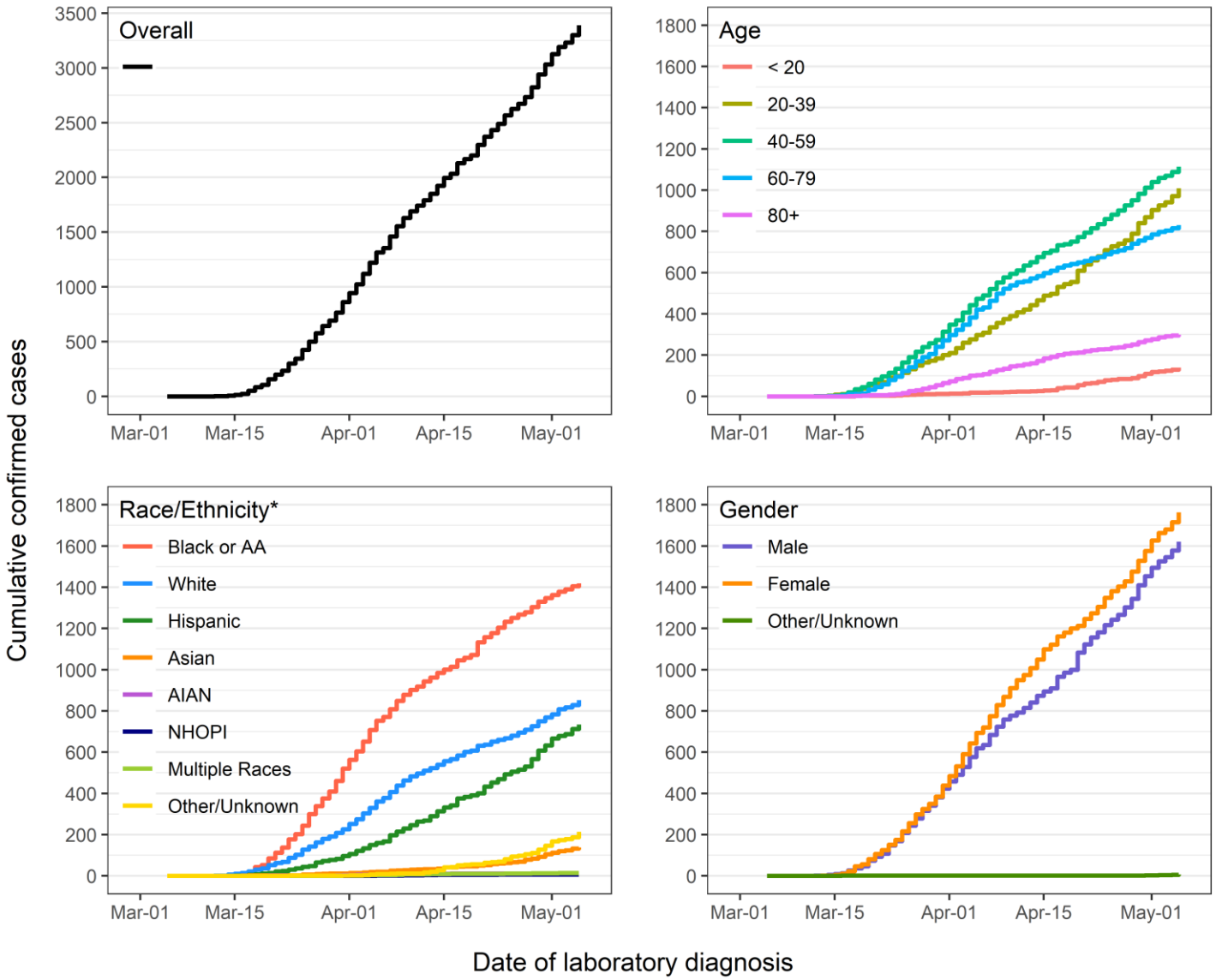

*Data source: Wisconsin Electronic Disease Surveillance System (WEDSS)*

## Demographic Patterns – Age, Sex, Race and Ethnicity

### Confirmed cases

COVID-19 cases vary by demographic characteristics. Most diagnosed cases fall within the ages of 20-79. Of all confirmed cases, 48% are male and 52% are female. The largest number of cases have been diagnosed among the Black or African American (AA) population. **Figure 8** shows cumulative case plots including confirmed positive cases with an available laboratory confirmation date. Over the past week, we have seen a slight uptick in cases among the Hispanic community, males and among those ages 20-39; the cumulative number of cases among those ages 20-39 (N = 1009) now exceeds the number among those age 60-79 (N = 830). A portion, but not all, of this increase is attributable to a focused testing campaign at the Patrick Cudahay/Smithfield Foods meatpacking plant, which resulted in a total of 89 cases – of those cases, 29% were between the ages of 20-39 and 49% were Hispanic.

**Figure 8**




*Data source: Wisconsin Electronic Disease Surveillance System (WEDSS)*

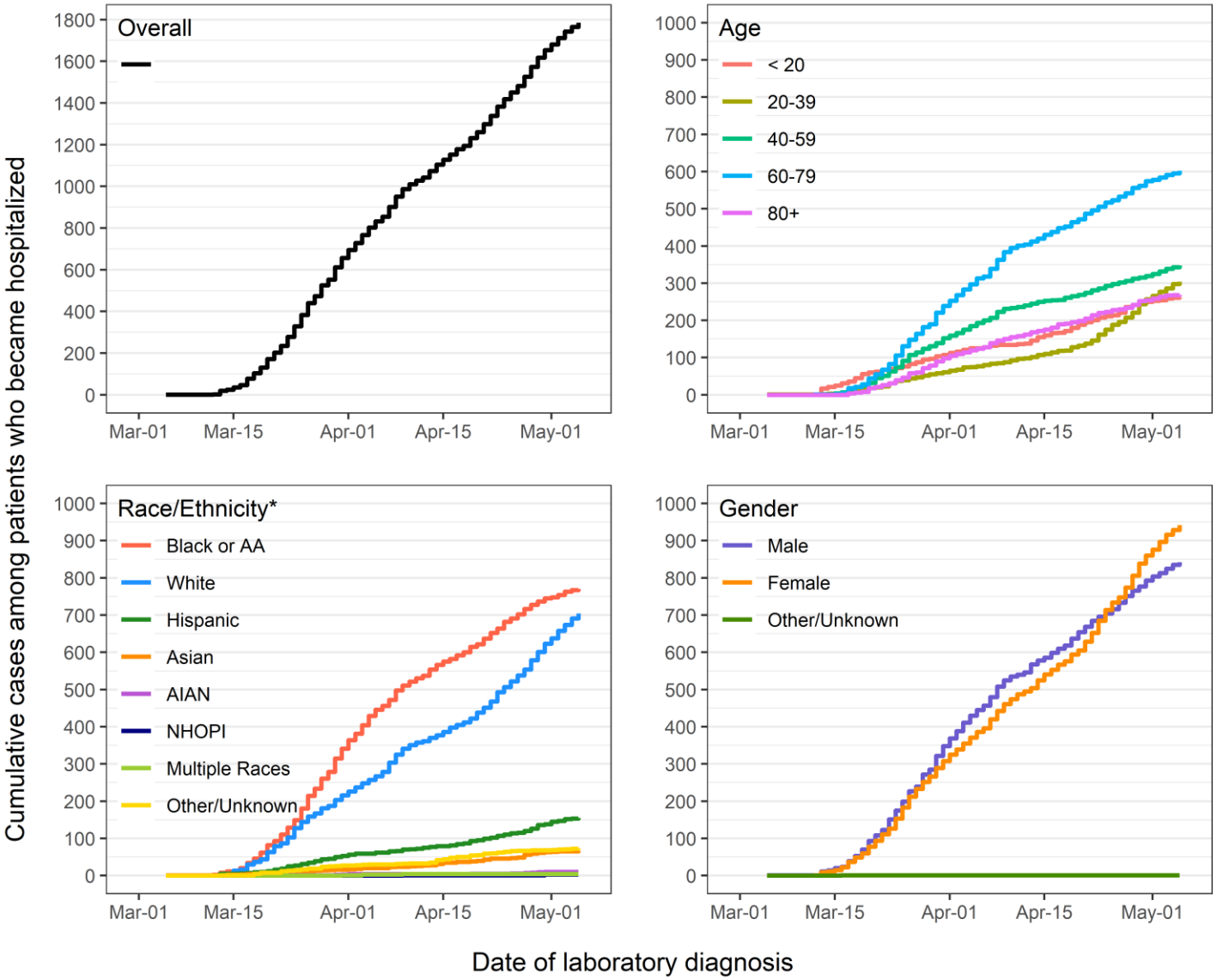
**Race and ethnicity were combined into one variable where the Hispanic category includes Hispanics of any race.*

*AIAN stands for American Indian or Alaska Native and NHOPI stands for Native Hawaiian or Other Pacific Islander.*

## Hospitalizations

A total of 1785 individuals have been hospitalized due to COVID-19. **Figure 9** shows cumulative hospitalizations based on lab report confirmation date (as admission dates are incomplete). Most hospitalized cases are between 40 and 79 years of age. Over the last two weeks, we have observed an increase in hospitalizations among those ages 20-39, such that the number of hospitalizations in this age group (N = 304) exceeds the number for those ages 80+ (N = 269). As with total cases, the highest number of hospitalizations is among the Black/AA community, followed by the White community which has seen a steeper increase in hospitalizations over the last week. Overall, counts are lower among other racial and ethnic groups. By gender, females are now hospitalized more often than males, comprising 53% of the total hospitalized cases; this is in contrast to the pattern of hospitalization we observed in several weeks prior, when a larger proportion of hospitalized were males than females.

**Figure 9**



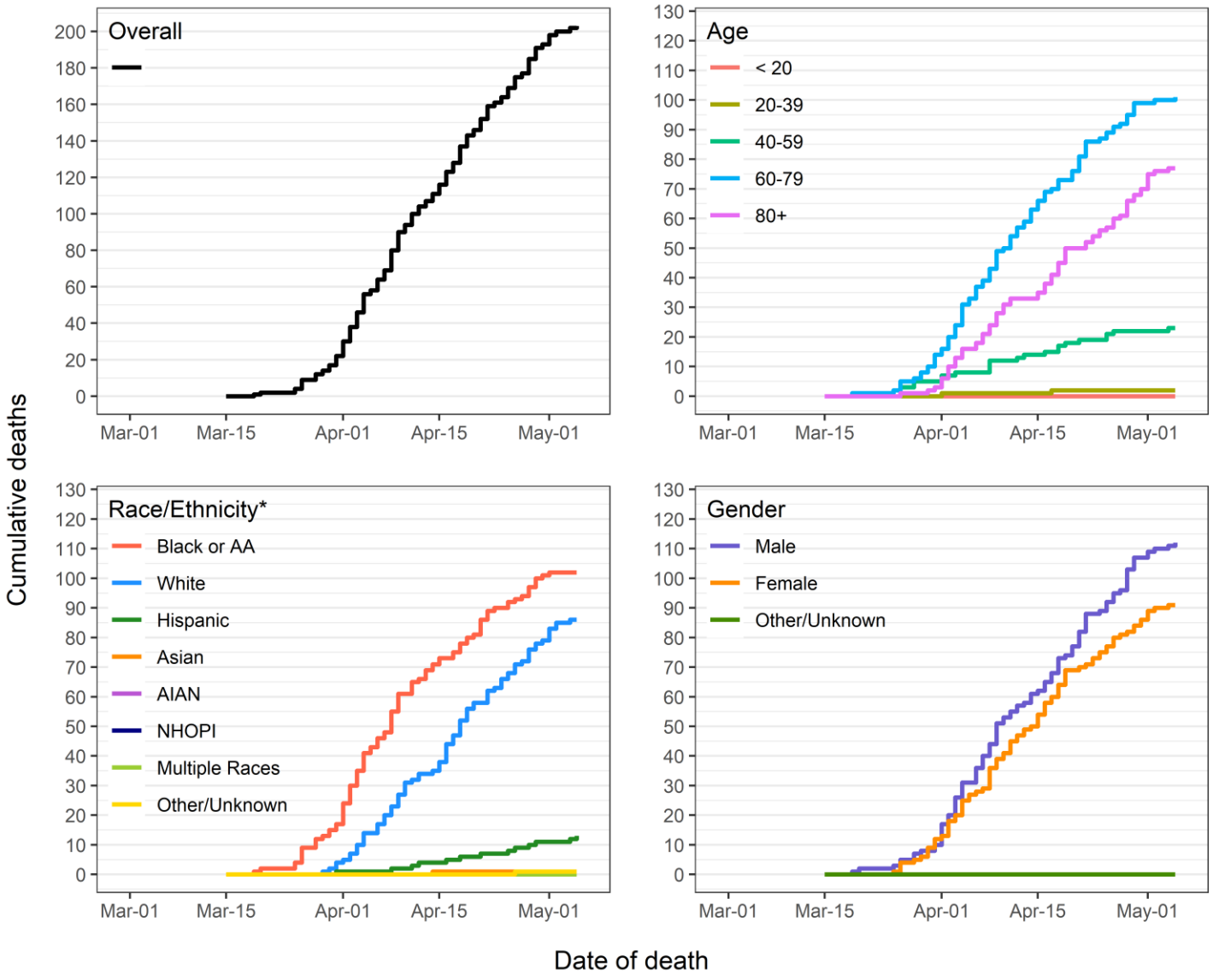

*Data source: Wisconsin Electronic Disease Surveillance System (WEDSS)*

**Race and ethnicity were combined into one variable where the Hispanic category includes Hispanics of any race. AIAN stands for American Indian or Alaska Native and NHOPI stands for Native Hawaiian or Other Pacific Islander.*

## Deaths

There are now a total of 203 confirmed deaths in Milwaukee County, representing a case fatality rate of 6.0%. We observed 18 new deaths over the past week in the county. The current doubling rate in the county (the number of days it takes for the number of deaths to double) is 544.02 days. Mortality patterns differ by demographic characteristics, as shown in **Figure 10**. The largest number of deaths are recorded among those age 60 or older. Similar to hospitalizations, the largest number of deaths are recorded for males and for the Black/AA community, followed by Whites.

**Figure 10**




*Data source: Wisconsin Electronic Disease Surveillance System (WEDSS)*

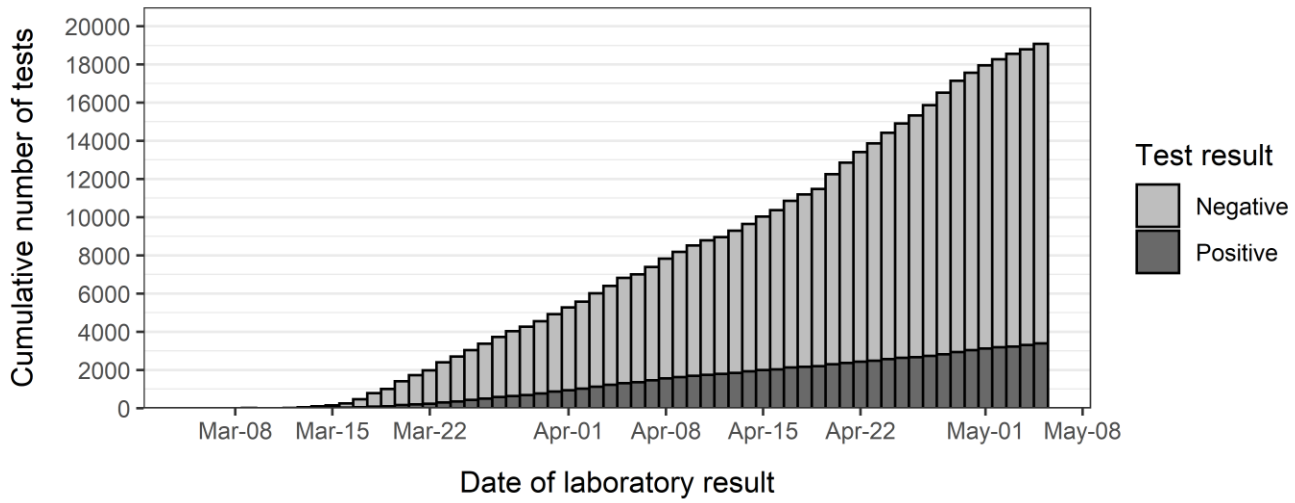
**Race and ethnicity were combined into one variable where the Hispanic category includes Hispanics of any race. AIAN stands for American Indian or Alaska Native and NHOPI stands for Native Hawaiian or Other Pacific Islander.*

## Testing Coverage

Testing for the novel coronavirus is an important public health response to limiting the spread of the infection. Testing capacity has been limited in Milwaukee County and across the country. Since the first case of COVID-19 was diagnosed in Milwaukee County on March 12, 2020, a total of 19081 COVID-19 tests have been returned with a laboratory result, with 15691 returned negative and 3390 confirmed cases. This represents a positive test rate overall of 17.8% since the beginning of the epidemic.

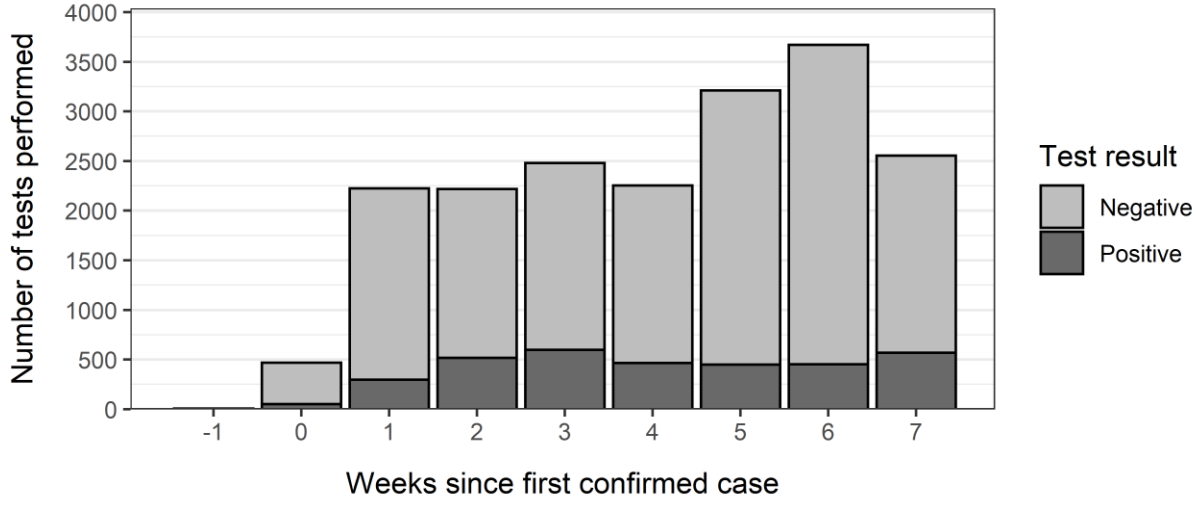
As shown in **Figure 11**, the total number of tests has gradually accumulated over time, with many more negative than positive tests. As shown in **Figure 12**, the total number of tests performed per week increased for two weeks prior to this week, in tandem with a stabilizing in the percent of positive tests each week. However, over the past week, we observed a reduction in the total number of tests completed and an increase in the percent positive tests; the percent of positive tests was 22.2% over the past week compared to 12.3% the previous week.

**Figure 11: Milwaukee County cumulative number of tests**




*Data source: Wisconsin Electronic Disease Surveillance System (WEDSS)*

**Figure 12: Milwaukee County number of tests per week**

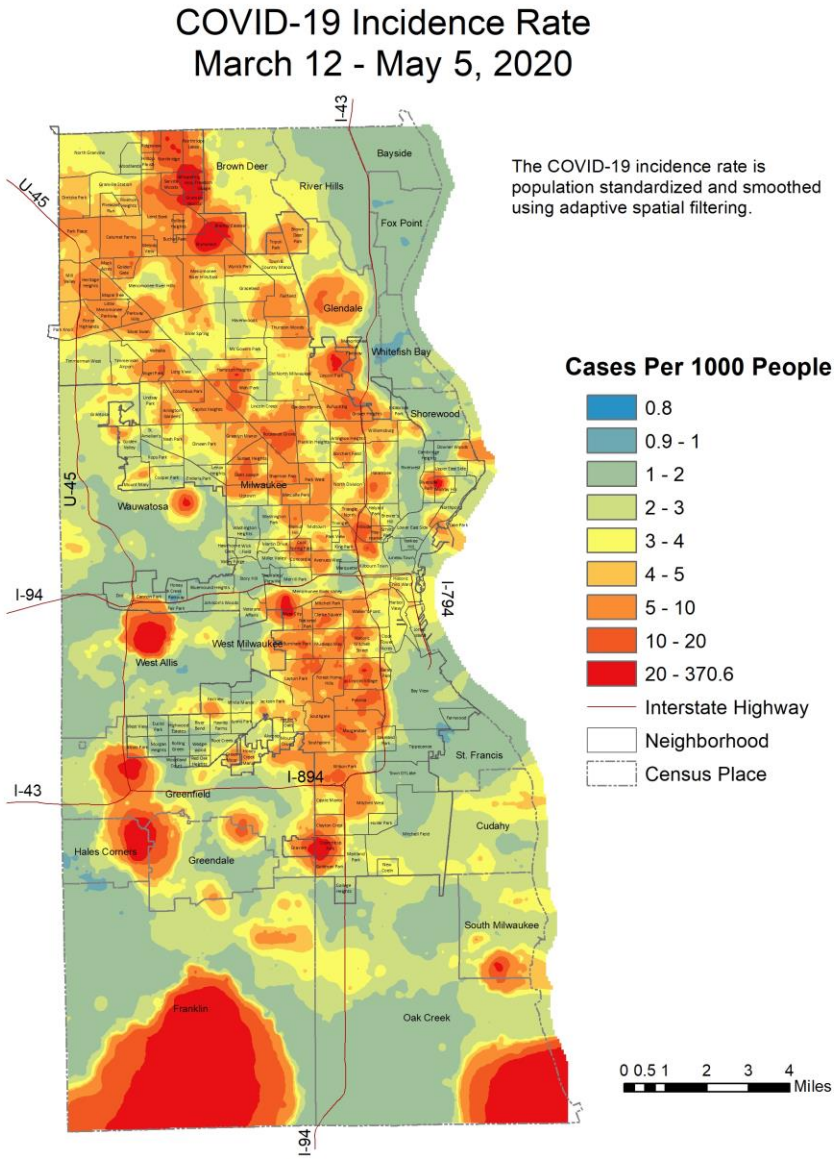



*Data source: Wisconsin Electronic Disease Surveillance System (WEDSS)*

## Spatial Patterns of Cases and Testing

COVID-19 spread is spatially patterned. **Map 1** below illustrates the cumulative burden (all confirmed cases) of COVID-19 in Milwaukee County. **Map 2** shows only the cases confirmed over the last week. **Map 3** shows the testing rate across the population. **Map 4** depicts the proportion of total tests completed that were confirmed positive. **Map 5** shows cumulative COVID-19 related hospitalizations in Milwaukee County. All are crude rate maps created using residential addresses and census block level population data from the US Census. The maps are smoothed to protect confidentiality and ensure that rates are stable while still providing geographic detail. High rates are depicted in red with lower rates depicted in blue. Of note, some of the higher rates observed can be attributed to infections that have spread within group quarters, such as a nursing home, prison, or long-term care facility.

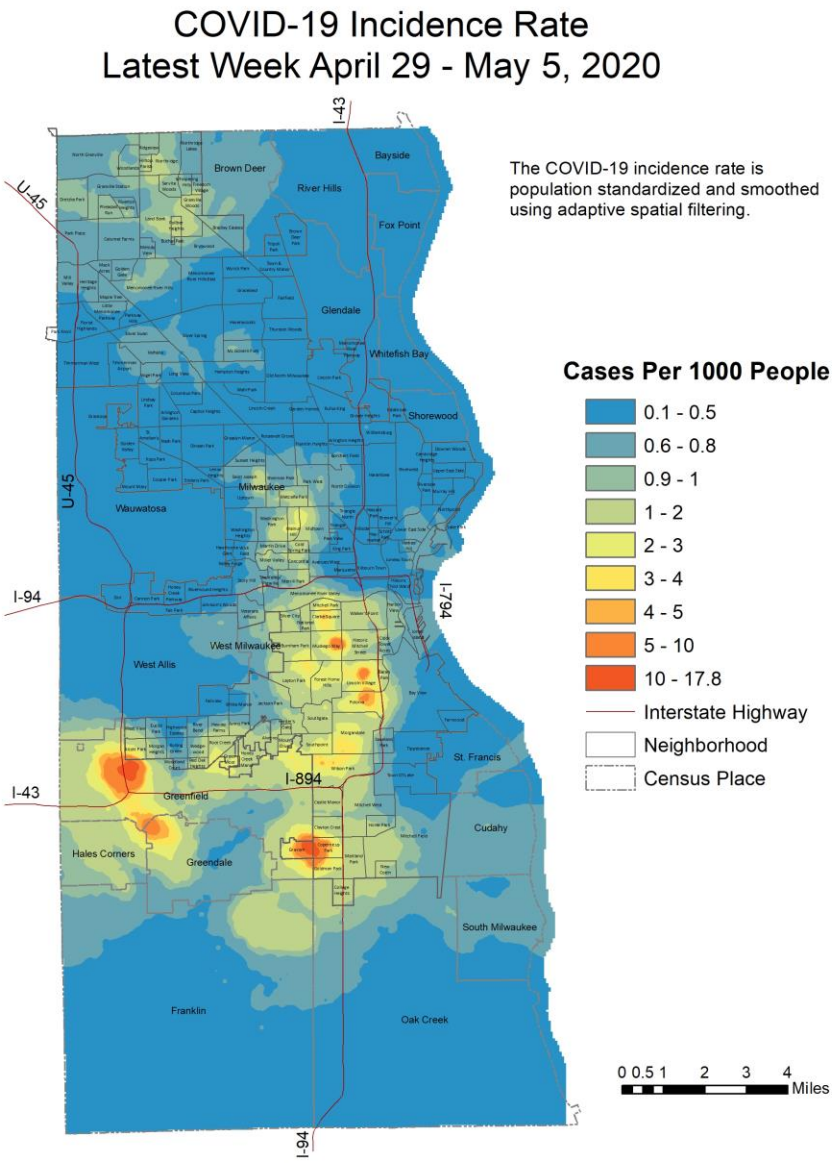
### Map 1: All confirmed cases of COVID-19




Method: A grid of points is used to estimate rates continuously across the map, based on the nearest cases with a minimum of 10 confirmed cases included.

Data Sources: Wisconsin Electronic Disease Surveillance System (WEDSS) (incidence data)
2010 Decennial Census (population data)
City of Milwaukee Map Milwaukee Portal (neighborhood boundaries)
Census Bureau TIGER/Line Shapefiles (census place boundaries)

## Map 2: Confirmed cases of COVID-19 within the last week

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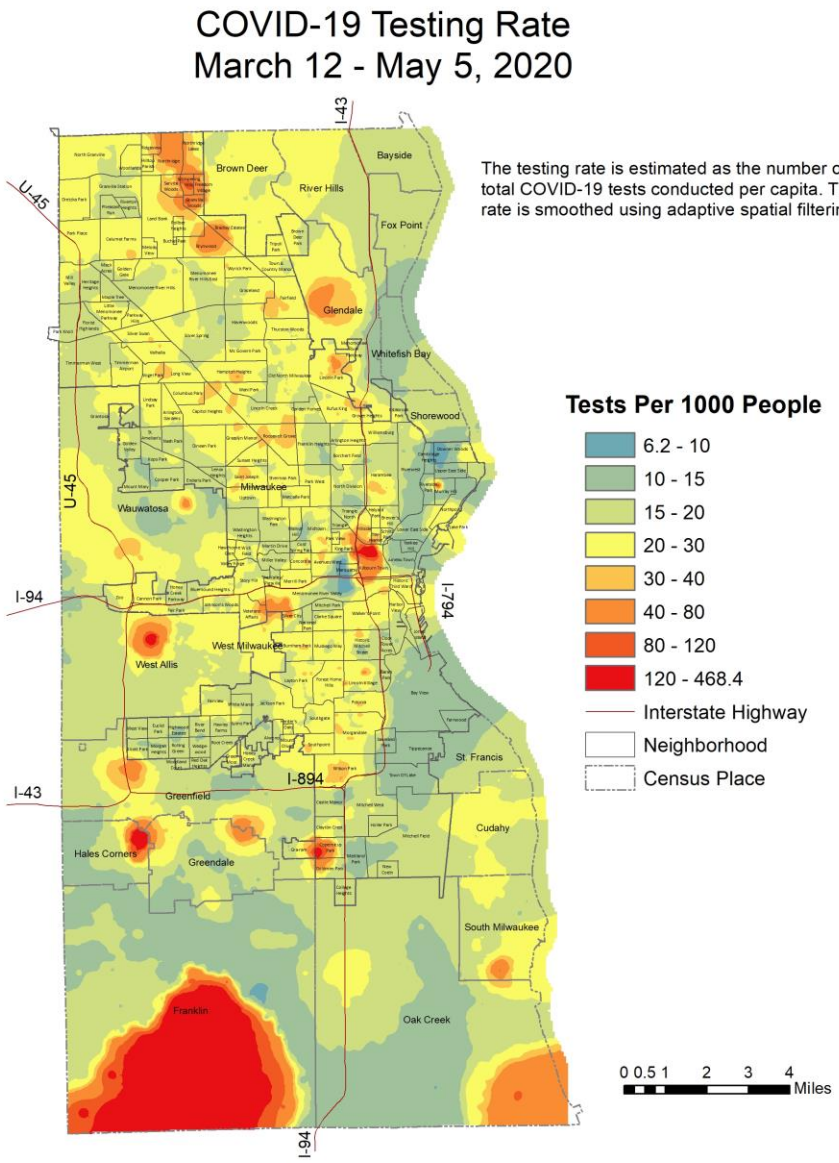
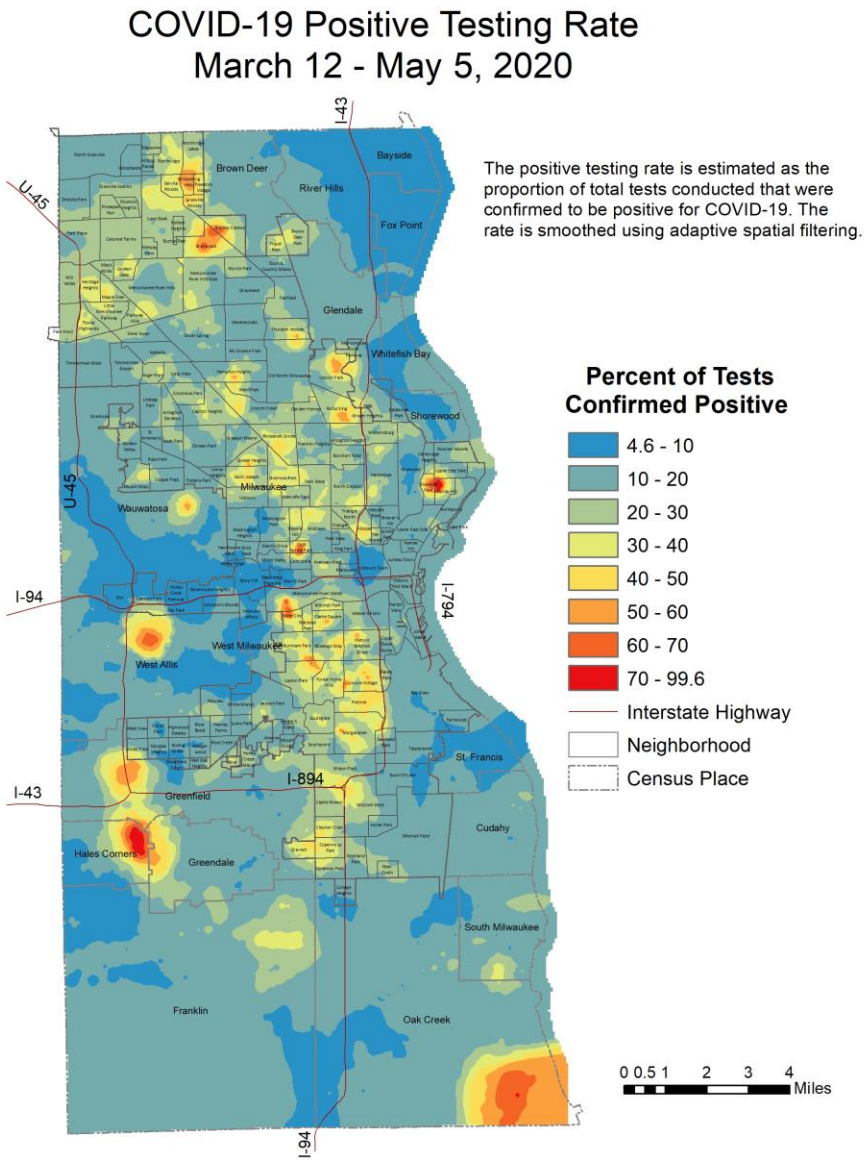
## Map 3: Testing rate




Method: A grid of points is used to estimate rates continuously across the map, based on the nearest tests conducted, with a minimum of 10 confirmed cases included in each calculation.

Data Sources: Wisconsin Electronic Disease Surveillance System (WEDSS) (incidence data)
2010 Decennial Census (population data)
City of Milwaukee Map Milwaukee Portal (neighborhood boundaries)
Census Bureau TIGER/Line Shapefiles (census place boundaries)

## Map 4: Proportion of total tests completed that were confirmed positive




Method: A grid of points is used to estimate rates continuously across the map, based on the nearest tests conducted, with a minimum of 10 confirmed positive tests included in each calculation.

Data Sources: Wisconsin Electronic Disease Surveillance System (WEDSS) (incidence data)
2010 Decennial Census (population data)
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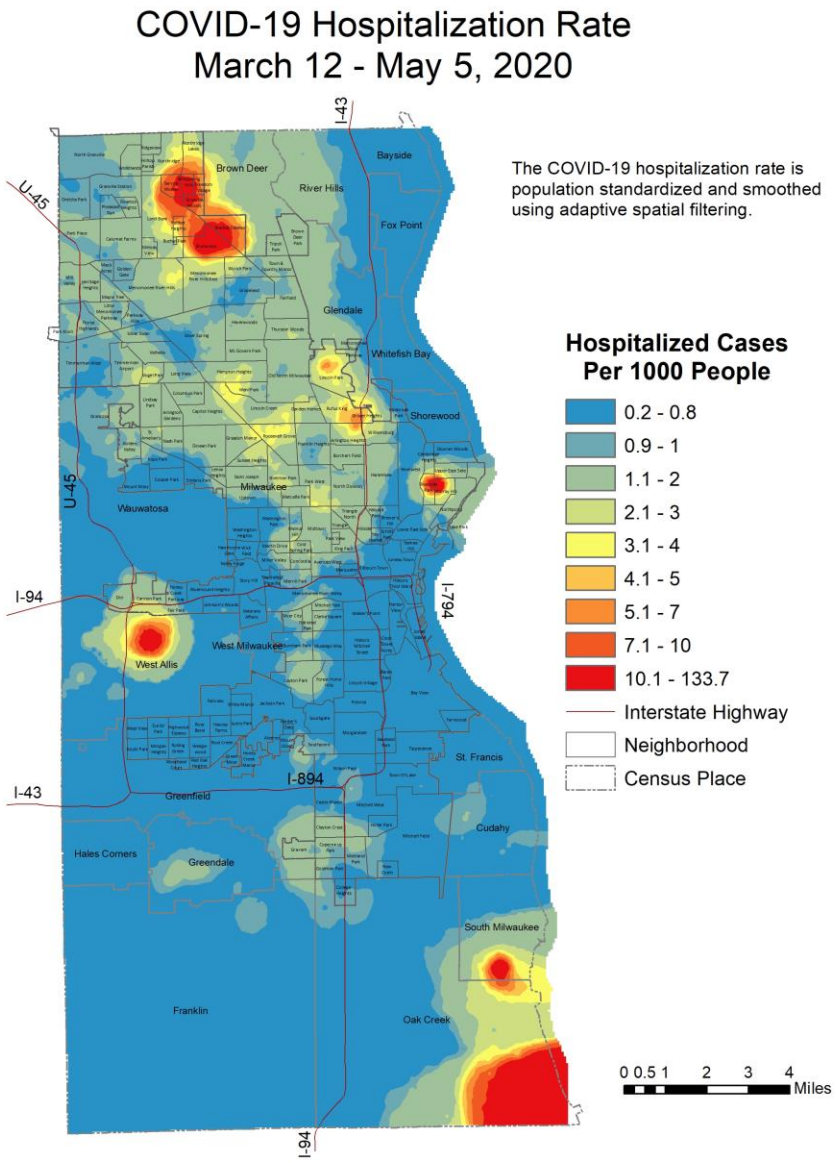
Census Bureau TIGER/Line Shapefiles (census place boundaries)

## Map 5: COVID-19 related hospitalizations




Method: A grid of points is used to estimate rates continuously across the map, based on the nearest cases with a minimum of 10 confirmed cases included.

Data Sources: Wisconsin Electronic Disease Surveillance System (WEDSS) (incidence data)
2010 Decennial Census (population data)
City of Milwaukee Map Milwaukee Portal (neighborhood boundaries)
Census Bureau TIGER/Line Shapefiles (census place boundaries)

## Data Sources & Acknowledgments

This report was created by faculty and staff in the Medical College of Wisconsin (MCW) Institute for Health and Equity (IHE) in partnership with representatives from local health departments and faculty from the University of Wisconsin-Milwaukee Zilber School of Public Health. Data sources include the Wisconsin Electronic Disease Surveillance System (WEDSS), the US Census Bureau, the Milwaukee County Medical Examiner's office, the Emergency Medicine Resource, and publicly available data obtained from local health and emergency response agencies. Data from the Wisconsin Electronic Data Surveillance System (WEDSS) summarized for the week includes data from April 29, 2020 through May 05, 2020. This work was funded by the Advancing a Healthier Wisconsin Endowment at the Medical College of Wisconsin.

## Contact Information

For additional questions on this report, please contact Darren Rausch, Health Officer/Director, Greenfield Health Department, and Lead, Milwaukee County COVID-19 Epidemiology Intel Team: Darren.Rausch@greenfieldwi.us or (414) 329-5275.